

FINAL TECHNICAL REPORT / RAPPORT TECHNIQUE FINAL

ANNEX 4B-DISSEMINATION WORKSHOP REPORT

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IDRC Grant / Subvention du CRDI: 107982-001-Scale Up of Homestead Food Production for Improved Nutrition in Cambodia (CIFSRF Phase 2)



Dissemination Workshop Report Family Farms for the Future



Foreign Affairs, Trade and
Development Canada

Affaires étrangères, Commerce
et Développement Canada



IDRC | CRDI

International Development Research Centre
Centre de recherches pour le développement international

Canada





Introduction

On June 5, 2018, Helen Keller International (HKI) and University of British Columbia (UBC) hosted a public Dissemination Workshop for the *Family Farms for the Future* project in collaboration with the Fisheries Administration (FiA), Ministry of Agriculture and Forestry and Fisheries (MAFF), Prom Vihear Thor and Village Support Group, and Organization to Develop Our Villages (ODOV). The purpose of this workshop was to bring together nutrition, aquaculture, and agriculture stakeholders to share key results of the *Family Farms for the Future* (FF4F) project.

A host of organizations including local non-governmental organizations (NGOs); international donor organizations; United Nation (UN) agencies; national, provincial and district level government departments; and universities; were represented by 85 workshop participants. The objective of this workshop was to share key results from the *Fish on Farms* project and to generate a discussion around agriculture and aquaculture as a means of improving nutrition and food security in rural Cambodia.

The schedule for this workshop can be found in *Appendix 1*. In general, initial presentations reviewed the content of the program, reminding workshop participants of the design and activities involved in the *Family Farms for the Future* project, including the underlying *Enhanced Homestead Food Production* program (EHFP). Later presentations then elaborated on the methods of program evaluation,

the results of the program, and the implications for future policy and program design.

Presentations

Welcome Remarks

Nancy Haselow, HKI

Ms. Haselow, of Helen Keller International, took the podium to welcome the workshop's guests and to introduce the purpose of the day's proceedings. She emphasized that the workshop would focus not only on the research findings themselves, but also on their *implications* for food security and nutrition action and policy. She expressed her thanks to HKI's many collaborators, and offered special thanks to the Cambodian government, particularly CARD and the Fisheries Administration for their collaboration at both the national and sub-national levels. She also thanked the University of British Columbia for their invaluable joint collaboration on the project. She also extended her thanks to local partners ODOV, VSG, PVT for their support in implementation. Thanks were also extended to Global Affairs Canada and IDRC for their financial support, as well as their collaboration in designing the research.

Ms. Haselow reviewed HKI's longstanding work and collaboration with the Government over the past 20 years that HKI has been working in Cambodia. The dynamic relationship continues to evolve and she expressed HKI's commitment to continuing this collaborative relationship, building on prior work. Indeed, the FF4F Program draws on the previous Fish on Farms project. The findings of research made possible through this collaboration have the potential to inform programs at HKI and other organizations around the world, and to make a real difference in addressing malnutrition.

Ms. Haselow noted that truly addressing the problems of malnutrition in Cambodia will involve addressing the double burden of both undernutrition and rising rates of overweight and obesity. She commended the Cambodian government's ambitious adaptation of the sustainable development goals to this end. She urged that achieving these goals will require additional financial support and investment by the government, civil society, UN agencies and donors, and an engaged and responsible private sector.

Welcome Remarks

Mr. Santiago Alba-Corral, IDRC

Mr. Santiago took the podium to share his thoughts on behalf of IDRC, regarding the conclusion of the *Family Farms for the Future* project, saying that he thought the appropriate word to describe the day's proceedings was "happiness." He expressed happiness for a productive and congenial experience of partnership among institutions that do not frequently work together. He noted the human faces of happiness he saw on an excursion to visit FF4F beneficiaries in the field the day before. He expressed happiness also at being able to see tangible results from this research project, even in a timespan of less than six years. He congratulated everyone for their participation in such an impactful project and expressed his eagerness to return to Cambodia in the future.

Opening and Closing Remarks by Representatives of the Cambodian Government

His Excellency Sok Silo, Deputy General Secretary of the Council for Agricultural and Rural Development (CARD)

His Excellency Eng Cheasan, Director General, FIA, MAFF

In his opening remarks, His Excellency Sok Silo, Deputy General Secretary of the Council for Agricultural and Rural Development (CARD) – the national coordinating body for food security and nutrition and Country Coordinator for SUN Movement - highlighted the importance of integrated community based interventions as a means to improve food security and nutrition in Cambodia. He went on to say that the FF4F project is a good example on how integrated interventions could be achieved for improved food security and nutrition in rural areas. He went on to say that CARD looks forward to discussing the lessons and best practices from the project, and to using them to inform the next national strategy on food security and nutrition.

In his closing remarks, H.E Eng Cheasan, Director General, FIA, MAFF, said that FIA valued very highly the success of this project, especially the innovation of the poly-culture of mall and large fish. He said that FIA has incorporated this model of poly-culture in their various documents, including their fish production training and strategy.

Presentation on Canadian International Food Security and Research Fund
Mr. Frank Schneider, GAC

Mr. Schneider spoke on behalf of the Development Stream of Global Affairs Canada. He expressed his appreciation for the opportunity to attend the workshop, and to see the results of what he views as a very successful project. He introduced the objectives of the Canadian International Food Security Research Fund (CIFSRF) pertaining to this project. These objectives included: 1) increasing food security in developing countries by applying research in food security and nutrition, with a focus on women and children, 2) increasing agricultural productivity through testing, implementing, and scaling up innovation 3) mobilizing developing country expertise and input in collaboration through creative multi-sectoral partnerships 4) using the results of research to influence policies and programs.

He then offered an overview of an ongoing nine-year \$124 Million Canadian Dollar initiative to tackle global food security challenges. This initiative is comprised of 39 projects in 20 countries with the collaboration of 20 Canadian organizations and more than 40 southern organizations. The initiative has tested, validated and scaled up over 60 innovations. The innovative interventions include such things as underutilized crops, management practices, value chains, food safety, and vaccines. The programming in Asia has focused particularly on reducing malnutrition, increasing millet production, reducing food wastage in shipping and storage. Mr. Schneider noted that these innovations may have potential applications well beyond Asia. Several of the programs specifically addressed issues related to female

smallholder farmers' workload. These sought to reduce work drudgery in order to afford women greater time for other social or economic pursuits. Beyond testing the innovations, and contributing to the global evidence-base another key achievement of the initiative to date has been the formation of partnerships with national and sub-national governments. He said that part of the current agenda is determining how to build on the work that has been done here in Cambodia, both within Cambodia and elsewhere, especially in light of the recent Canadian feminist assistance policy.

Overview of Enhanced Homestead Food Production Program and Its Integration with Family Farms for the Future

Mr. Zaman Talukder, HKI

Mr. Talukder began his remarks with an overview of Hellen Keller International's flagship Enhanced Homestead Food Production program (EHFP). He outlined several important research and implementation questions related to the implementation of the EHFP model in the context of the FF4F project. These questions included the acceptability of incorporating microfinance with the program, and testing different cost-sharing schemes. A second objective in the context of the FF4F project was to develop tools, including those related to fish hatcheries, to share with collaborative partners, and to transfer knowledge and skills to collaborating NGOs. A third goal of the project was to inform nutritional strategies and policies of national and international stakeholders. This was achieved through the development of evidence-based policy briefs and the dissemination of evidence-based findings through workshops and publications.



Overview of Family Farms for the Future Research Goals and Study Design

Dr. Tim Green, UBC

Dr. Green offered his appreciation to all collaborators on behalf of UBC, and his appreciation for the successful collaboration between organizations that bring different perspectives to the table. Dr. Green then delivered an overview of trends in nutrition in Cambodia in light of the country's rapid economic development. He reiterated previous speakers' comments about the growing double burden of undernutrition and overweight and obesity. He reviewed the remarkable progress that has been made to reduce stunting in the past fourteen years, but noted that further reducing the prevalence of stunting may prove even more challenging.

The urgent need to develop a diverse and environmentally sustainable food production system served as the rationale for the study UBC conducted on FF4F. He noted that nutrition-sensitive interventions such as EHFP can supplement nutrition-

specific programs to reduce the underlying determinants of undernutrition. There had heretofore not been a study of the economic costs and benefits of such a nutrition-sensitive intervention, and the research conducted on FF4F sought in part to address this evidence gap.

Dr. Green and his team and collaborators employed a randomized-control trial study design. Dr. Green noted some potential issues with this study design, including the motivation of those randomized to fish farming, and the potential aversion to cost-sharing in the study population. Throughout the study there were issues related to cost-sharing, and minimal data collected regarding reasons for attrition. Nevertheless, Dr. Green highlighted one positive real-world impact of the study, which was that it identified a lower-than-expected prevalence of iron deficiency anemia. This resulted in a scaling back of national iron supplementation programs in Cambodia.

Dr. Green went on to discuss the study design in relation to the FF4F program's hypothesized pathway of impact. In doing so, he outlined key assumptions about intervention adoption, increased production, likely mechanisms of income-generation, and mechanisms for improved nutrition. Dr. Green then elaborated on the exact details of the study design, study timeline, the clustering and randomization procedures, and the inclusion and exclusion criteria for participants. He also elaborated on the outcome measurements, including the procedures for conducting multiple 24hr diet recalls, which presented particular challenges in the Cambodian context. The recalls were administered with collaboration from IFPRI, and nutrient databases were extensively adapted for the Cambodian context.

Overview of Project Implementation **Hou Kroeun, HKI**

Mr. Kroeun delivered a presentation on the implementation of the *Family Farms for the Future* project. He recognized the members of the advisory and implementation team, and described their roles and responsibilities. Mr. Kroeun described how initial formative research, as well as lessons learned from prior programs influenced the implantation plan for FF4F.

He then reviewed the procedure for study recruitment, including recruitment at the village and household levels. He reviewed strategies for informing participants about what participation in the study would entail, including the use of a pre-recorded video for communication. The recruitment process took between four and five months. There were more interested households than those formally engaged as study participants. Common reasons that participants were not interested in participating included, feelings that the inputs offered were insufficient, concerns about adequate water supply for aquaculture, and disinterest in the gardening portion of the program.

Mr. Kroeun also introduced community-based support service systems that were established to provide input and technical support to participating households. These included village model farms, which served as a training center, source of

information and technical assistance, as well as a distribution center for program inputs.

Mr. Kroeun discussed the procedures for training and the training of trainers. Monthly counseling was delivered to households on nutrition and dietary diversity, particularly targeting women. Bi-monthly meetings convened women and health volunteers together with program staff to discuss best practices and lessons learned. This feedback was used to refine the program and to disseminate best practices. Mr. Kroeun then reviewed program activities designed to support the marketing of produce, including the refining of tools and strategies to support marketing.

Development and Adaptation of the Nurturing Connections Women's Empowerment Approach for the Cambodian Context

Ramona Ridolfi, HKI

Ms. Ridolfi spoke about the inclusion of women's empowerment programming in the FF4F program design. She detailed the monitoring and evaluation procedures put in place to document what worked and did not work. The design of the gender strategy began with formative research, which was then enhanced by a literature review and resulted in a draft of a program curriculum manual. Once drafted, the manual was further refined through ongoing feedback from frontline staff. The curriculum, which is called "Nurturing Connections" is a gender-transformative curriculum that was originally developed by HKI in 2012 in Bangladesh, but has now been implemented in seven projects across four countries. The design of the curriculum came from observations that having limited household influence hinders women's ability to act on nutritional best practices and recommendations.

Ms. Ridolfi offered an overview of the modules within the curriculum, which in Cambodia are implemented across seven sessions devoted exclusively to the Nurturing Connections content. Some modifications for the Cambodian context included adding activities focused on domestic violence, and the intra-household management of income. Adaptation for the local language context was done with input from the frontline field staff. For Cambodia, the sessions were also delivered in single gender settings, that is, separately to male and female household members.

Fish Hatcheries: A Sustainable and Profitable Enterprise for Increasing Fish Production by Combination of Carps and Small Indigenous Species

Dr. Hav Viseth, Fisheries Administration

Dr. Viseth spoke about small scale household aquaculture as a component of the FF4F project. He highlighted the innovation of polyculture, or raising small and large-carp species in the same pond. While the small indigenous and micronutrient-dense fish were primarily harvested for consumption, the larger fish could be harvested for supplemental consumption, or for sale to generate income. Dr. Viseth described the species of fish most commonly raised in the FF4F households who participated aquaculture, as well as their nutrient profiles. He offered examples of

the FF4F behavior change communication materials designed to promote small fish consumption.

Dr. Viseth then reviewed the role of small scale fish hatcheries in the program. Expanding on prior lessons learned from the *Fish on Farms* program, HKI and FIA designed and promoted small scale fish hatcheries to support decentralized fish production, and to provide a sustainable supply of small fish at the community level. Not only did hatcheries improve access to small fish at the community level by preventing mortality in transportation, reducing the cost of transportation, but they also served to increase the technical knowledge of fish production among participating households by providing an example.

Dr. Viseth outlined the practicalities of establishing the FF4F hatchery farms. These included an overview of the selection criteria for the hatchery farms, which included being centrally located and easily geographically accessible. He also discussed the process of establishing signed agreements, sharing construction costs, and repayment plans for initial loans. Dr. Viseth presented the total sales in USD for each of the 10 hatcheries established, which ranged from \$2,500 to \$11,500.

Dr. Viseth also discussed the process by which these farms supported aquaculture at the household levels, including the technical support they provided, the trainings they conducted, and the start-up kits that they delivered to participating households. Between the *Fish on Farms* project, and the *Family Farms for the Future* project, a total of 1,200 household aquaculture ponds were developed.

The key takeaways from the program included; the importance of hatchery farmer selection, the promising sustainability observed among the local fish hatcheries, the great technical assistance provided by hatcheries to households, and, finally, the promising potential for future scale-up of these hatcheries.

FF4F Outcomes

Gary Mundy, HKI; Kristina Michaux, UBC; Larry Lynd, UBC

Mr. Mundy began this multi-part presentation on some of the key outcomes of the FF4F project. He began with a review of the project impact pathway. Mr. Mundy described how testing the steps on the impact pathway required developing detailed and sophisticated measures for production and consumption. He notes that these measures were a fruit of the academic collaboration with UBC, and that they will prove useful for HKI's monitoring and evaluation research going forward.



Mr. Mundy went on to present some research findings, including the increased uptake of different beneficial farming practices since baseline, and an increased variety of fruits and vegetables being cultivated. Mr. Mundy noted a general increase in fruit and vegetable production overall, with a statistically significant increase in vegetable production during May, June, and October. He suggests that these increases are likely attributable to adoption of improved technology and promoted practices among intervention households.

In fish production, increases, and in some months, statistically significantly increases in fish production were observed in intervention households as compared to control households.

Mr. Mundy noted some other findings, including a high prevalence of poultry disease with evidence to suggest this disease was not being addressed. He suggests that this may have contributed to the modest differences in poultry meat and egg production between control and intervention households.

Ms. Michaux then took the podium to discuss results from the dietary assessments conducted throughout the course of the project. One main objective of the dietary assessments was to assess seasonal variation in consumption. Two additional objectives were to compare intake over time between control and interventions, and adapting and refining tools such as survey instruments and nutrient databases appropriate for the Cambodian context. She reviewed the procedure for data collection, including data collected for statistical correction and measure validation.

In an overview of the results, Ms. Michaux noted that there was a statistically significant difference in the likelihood of inadequate intake for several micronutrients of interest between intervention and control households for *both* women and children in both the lean and peak growing seasons. She noted that there are myriad opportunities for further research given the richness of the data collected.

Finally, Mr. Lynd described the results from an economic evaluation of the FF4F program. He identified the inputs and outputs outlined in the program impact pathway, and the opportunities and challenges related to quantifying the economic value of these. The chosen type of economic analysis was a cost-effectiveness analysis, specifically looking at the incremental cost of implementation relative to disability-adjusted life years (DALYs). The team did not have a method to directly measure disability-adjusted life years, but leveraged a previous study (Stein et al. 2005) that modeled the DALY impact of increased zinc consumption. Researchers were also able to monetize the value of production outputs, and to collect information on costs, both from program operations and from participant labor. The analysis, modeled over ten years, observed a positive economic benefit in the intervention arm, with the increased production outweighing increased costs. Specifically, the cost benefit analysis found a positive net benefit of \$477 per household over ten years. Mr. Lynd caveats this observation by noting several assumptions included in the model. A key consideration is that the results model only DALYs averted attributable to increased zinc intake. Mr. Lynd noted the

extraordinary data collected, including the detailed production data, which enabled this level of analysis.

FF4F Outcomes – Continued

Najma Moumin, UBC

Ms. Moumin began her remarks with a comparison of the study population to the larger population of Cambodia, noting that the prevalence of both stunting and maternal malnutrition were similar to national prevalence as determined by the demographic and health survey. As compared to baseline, neither the intervention, nor the control group demonstrated a significant change in the prevalence of stunting or maternal malnutrition.

An end-line assessment of the wealth of households in the sample, using DHS surveys and the equity tool, suggest that, on average, the study sample is well off relative to the national population of Cambodia.

Outcome results related to food security suggested that participation in the FF4F program resulted in increased access to food and household food security. Food security status improved by nearly 50 percent.

Women's empowerment was also examined as an outcome. A tool called the Women's Empowerment in Agriculture Index, developed by IFPRI, was used to measure women's autonomy and decision-making power. Results from this analysis showed that women in the sample already demonstrated high levels of empowerment at baseline. Among intervention households, an increase in women's control over food crop and cash crop farming was observed over the time of the study period.

WASH was another area of interest, and outcomes such as access to drinking water sources in the dry season, and access to improved sanitation, showed measurable increases at endline. However, other beneficial practices, such as hand washing did not increase satisfactorily.

While knowledge of good nutrition practices was found to also be quite high at baseline, it was determined that this knowledge did not always translate into practice. For example, although there was knowledge of the benefits of exclusive breastfeeding, use of infant formula was still common.

Ms. Moumin also discussed the rate of attrition from the program and gave an overview of common factors leading households to drop out of the program. These included primarily lack of available time and labor. She shared that most dropout happened early in the life of the program, before any significant investments on the part of the program or the household. Dropout was highest in Phnom Penh, where most dropout was due to alternative income-generating activities. The greatest dropout occurred among households who were involved in only gardening, not livestock rearing or aquaculture. Differences in wealth did not seem to affect risk of dropout.

Lessons Learned

Mr. Zaman Talukder, HKI

Mr. Talukder offered a review of the major lessons learned over the three-year course of the FF4F Project. One major lesson was establishing the timeline required to recruit households, and the minimum time over which results could be determined for the outcomes of interest. Another important takeaway was the overall higher interest and higher retention for livestock and fish farming relative to gardening alone. The aquaculture component was found to be more successful in low-lying areas, which will be important to consider for potential future dissemination.

Another lesson learned pertained to the sensitivity of tools and methods used to measure changes in women's empowerment, especially given the somewhat high level of empowerment at baseline in the sample. Tools might be designed or adapted to measure areas of empowerment beyond those examined in this study as well.

Poultry diseases, and lack of access to high quality chicks were two challenges identified in the poultry program. Addressing these, and emphasizing best practices to ensure chick survival, including in transport, should be two areas for future effort.

Policy Implications

Hou Kroeun, HKI

Mr. Kroeun delivered a presentation on the policy implications of the findings on the *Family Farms for the Future* project. He began by reviewing the priorities of the current National Strategy for Food Security and Nutrition. The current priorities span three major areas; improving sustainable access to food at the household level, improving maternal and child nutrition during the 1,000 day period, and reducing the vulnerability of the food insecure. Mr. Kroeun outlined the programmatic goals and anticipated impact pathway of the FF4F project and highlighted how closely these align with the national strategic priorities.

Mr. Kroeun reiterated and summarized the results presented by prior speakers, noting the positive benefits FF4F was found to produce on dietary diversity, micronutrient consumption, prevalence of nutrient inadequacies, DALYs, household income, and household food security. Given this range of positive benefits, the main policy implication Mr. Kroeun imparted was that the FF4F model should be included in food security and nutrition policy. He added that poly-culture of large and small fish in household ponds should be incorporated in the FIA's national strategy as a means to improve food security and nutrition among small holder farmers.

Community support services such as fish hatcheries and village model farms should also be recommended as part of agriculture and aquaculture policies and strategies. Poultry management and best practices to improve poultry survival rates should be emphasized in livestock policy. Lastly, due to the FF4F's promising findings on the effectiveness of women's empowerment programming, gender and women's

empowerment should be more prominently considered in food security and nutrition policy as a means to improve food security and nutrition.



Appendix 1. Agenda for *Family Farms for the Future* Dissemination Workshop on June 5, 2018



Family Farms for the Future
Scale up of Enhanced Homestead Food Production for Improved Household Food Security and Nutrition in Cambodia

Dissemination Workshop

June 5th, 2018

Himawari Hotel, Phnom Penh

TUESDAY JUNE 5 TH , 2018	
TIME	ACTIVITY
7:30 – 8:00	Arrival and registration of guests
8:00 – 8:10	Introduction and National Anthem
8:10 – 8:30	Welcome Remarks by: <ul style="list-style-type: none"> - Ms. Nancy Haselow, Vice President Asia Pacific, Helen Keller International - Mr. Santiago Alba-Corral, Associate Director, Food Security, International Development Research Centre
8:30 – 8:45	Opening Speech by H.E. Sok Silo Deputy Secretary General Council for Agricultural and Rural Development (CARD).
8:50 – 9:00	Photo Session
9:00 – 9:15	Presentation on Canadian International Food Security and Research Fund (CIFSRF) - by Mr. Frank Schneider, Deputy Director, Partnerships for Development Innovation, Global Affairs Canada.
9:15 – 9:45	<p>Overview of Family Farms for the Future (FF4F) Project</p> <ol style="list-style-type: none"> 1. Introduction to Enhanced Homestead Food Production 2. Evolution of FF4F from Phase 1 to Phase 2 3. Overview of the FF4F Program and Objectives 4. Overview of Research and Programmatic Components of FF4F

9:45 – 10:00	Tea Break
10:00 – 11:00	<p>Project Implementation:</p> <ol style="list-style-type: none"> 1. Timeline of key activities 2. Overview of FF4F Formative Research: gap analysis, situational analysis, gender analysis, value chain analysis 3. Household Targeting and Recruitment Strategy: description, successes and challenges of cost-sharing model 4. Programmatic Components: <ol style="list-style-type: none"> a. Overview of innovations: EHFP models, training packages, hatcheries, nurseries b. Development and implementation of value chain analysis & business/marketing training c. Development and process of adapting the Nurturing Connections women's empowerment approach for the Cambodian context
11:00 – 11:25	FF4F Case Study – <i>Fish hatcheries: a sustainable and profitable enterprise for increasing fish production by combination of caps and small indigenous species</i>
11:25 – 12:05	<p>FF4F Outcomes:</p> <ol style="list-style-type: none"> 1. Production: what, how much, and to what value? 2. Dietary intake 3. Economic evaluation
12:05 – 1:00	Lunch
1:00 – 1:45	<p>FF4F Outcomes (continued):</p> <ol style="list-style-type: none"> 1. Results of household surveys measures: food security, gender empowerment, anthropometry, WASH, nutrition/health knowledge 2. Attrition: who dropped out, and why? 3. Lessons learned
1:45 – 2:15	<p>Policy Implications</p> <ol style="list-style-type: none"> 1. FF4F alignment with government priorities 2. Key recommendations
2:15 – 2:30	Tea/Coffee break
2:30 – 3:00	Panel discussion, followed by Q&A
3:00 – 3:15	Closing Remarks by H.E Eng Cheasan, Director General for the Fishery Administration at the Ministry of Agriculture, Forestry and Fisheries (MAFF)